



**PRODUCT MANUAL FOR
INSTANTANEOUS DOMESTIC WATER HEATER
FOR USE WITH LPG
ACCORDING to IS 15558:2005**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 15558:2005
	Title	:	INSTANTANEOUS DOMESTIC WATER HEATER FOR USE WITH LPG
	No. of Amendments	:	4
2.	Sampling Guidelines:		
a)	Raw material	:	Clause 5 and 6.6 of IS 15558
b)	Grouping guidelines	:	Each Type of Instantaneous Domestic Water Heater for use with LPG shall be tested for GoL/CSoL
c)	Sample Size	:	One Water Heater
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence	:	Please refer ANNEX – C

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ANNEX - A**List of Test Equipments****Major test equipment required to test as per the Indian Standard**

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Mercurous Nitrate Test as per Clause 5.2	a. Mercurous Nitrate, Di-hydrate b. Distilled Water c. Conc. Nitric Acid d. Weighing Balance e. Measuring Cylinders f. Magnifying Glass
2.	Determination of Swelling of Non Metallic materials (Immersion Test) as per Clause 5.3	a. N-Pentane b. Weighing Balance
3.	Gas Soundness as per Clause 14	a. Air Compressor b. Air pressure gauge c. Leak Test Apparatus d. Bubble leak Indicator e. Water Tank
4.	Water Soundness as per Clause 15	a. Hydraulic pump b. Pressure Gauge
5.	Thermal efficiency as per clause 16 and Time for Temperature rise as per Clause 25	a. Weighing Balance and Weight Box b. Thermometer c. Overhead Water Tank. d. Test set up for Thermal Efficiency e. Measuring Jar f. Gas Cylinder g. Stop Watch
6.	Combustion Test as per Clause 17	a. Digital CO (Carbon mono-oxide) Indicator b. Orsett Apparatus c. Pipette d. Chemicals, Measuring cylinders and Chemical Balance, wash bottle e. Gas collecting Hood
7.	Gas Consumption as per Clause 18	a. Calibration Bottle b. Air Compressor c. Gas Flow Meter d. Thermometer e. Pressure Gauge f. Barometer g. Stop watch h. Air testing apparatus with empty air tank

8.	Ignition and Flame Travel as per Clause 19 and Flame Stability as per Clause 20	a. Gas cylinder b. Burner c. Pressure Gauge d. Gas Flow Meter
9.	Flash Back as per Clause 22	a. Burner b. Gas cylinder c. Distilled water d. Gas Flow Meter
10.	Resistance to draught as per Clause 23	a. Rotating Vane Anemometer
11.	Fire Hazard and Limiting Temperature Test as per Clause 24	a. Fire hazard apparatus
12.	Hot water output Test as per Clause 26	a. Thermometer b. Stopwatch c. Measuring Jar
13.	Dimensions	a. Vernier Caliper b. Micrometer c. Dial Caliper d. Thread Gauge e. Scales
14.	To maintain Room- temperature	a. Air Conditioners b. Heat Convector

The above list is indicative only and may not be treated as exhaustive.

Annex- B

Scheme of Inspection and Testing

1. **LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.
 - 1.1 The manufacturer shall prepare a calibration plan for the test equipments.
2. **TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.
3. **LABELLING AND MARKING** – As per the requirement of IS 15558: 2005.
4. **CONTROL UNIT** -Water heaters of the same design, material of burners, total gas consumption, type of exhaust (flue or forced), Heat input and Hot water output manufactured during a day shall constitute a control unit.
5. **LEVELS OF CONTROL** - The tests as indicated in column 1 of [Table 1](#) and the levels of control in column 3 of [Table 1](#), shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.
 - 5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.
6. **REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(1)		(2)		(3)			
Test Details		Test equipment requirement		Levels of Control			
Cl.	Requirement	Test Method		R:required (or) S: Subcontracting permitted	No. of Sample	Frequency	Remarks
		Clause	Reference				
4.	General Requirements	4	IS 5116	R	Each water heater	---	---
		4.1.1 to 4.1.9 4.1.12	IS 15558				
		4.1.10	IS 15558	R	One	Each Control Unit	---
		4.1.11	IS 15558	R	One		
5	Materials	5.1	IS 15558	S	One	Each Consignment	No further testing is required, if accompanied with Test Certificate or ISI Marked. In case of failure, consignment shall not be used in manufacturing.
		5.2	IS15558 IS 2305	S	Two set		
		5.3 & Annex A	IS 15558	S			
6.	Connection	6.2	IS 15558	S			
		6.3	IS 15558	S			
		6.4	IS 15558 IS 554	R	One	Each Control Unit	---
		6.6 18	IS 15558 IS 5116	R	One		

7	Flame Visibility	7	IS 15558	R	Each water heater	---	---
8	Gas Taps	8	IS 15558	R			
9	Flame Failure Device	9.1 & 9.2 Annex E 14.1	IS 15558 IS 5116	R			
10	Ignition Device	10	IS 15558	R			
19	Ignition & Flame Travel	19	IS 15558	R			
11	Protection against overheating	11	IS 15558	R			
14	Gas Soundness	14 16	IS15558 IS 5116	R	Each water heater		
15	Water Soundness	15	IS 15558	R			
20	Flame Stability	20	IS 15558	R			
21	Noise Control	21	IS 15558	R			
22	Flashback	22	IS 15558	R	One	Each Control Unit	
TYPE TESTS							
5	Material	5.4	IS 15558	R	Two	Every 10 th consignment	
16	Thermal Efficiency	16 & Annex B	IS 15558	R	One	Every 10 th Control Unit	In case of failure, sample from three consecutive control units shall be tested. The original frequency may be restored only if these samples pass.
17	Combustion Efficiency	17 & Annex C	IS 15558	R	One	Every 30 th Control Unit	

18	Gas Consumption	18	IS 15558	R	Three	Each Control Unit	In case of failure, six more water heaters shall be drawn and tested. In case of any further failure, all the pieces in the control unit shall be checked and only those found conforming shall be marked.
23	Resistance to draught	23	IS 15558	R	One	Every 10 th Control Unit	In case of failure, sample from three consecutive control units shall be tested. The original frequency may be restored only if these samples pass.
24	Fire Hazard & Limiting Temperature	24 23	IS15558 IS 5116	R	One	Every 30 th Control Unit	
25	Time for temperature rise	25 & Annex D	IS 15558	R	One	Every 10 th Control Unit	
26	Hot Water Output test	26 & Annex C	IS 15558	R	One	Every 10 th Control Unit	

NOTE-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

NOTE-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

ANNEX – C

SCOPE OF THE LICENCE

Licence is granted to use Standard Mark as per IS 15558:2005 with the following scope:	
Name of the Product	Instantaneous Domestic Water Heater for use with Liquefied Petroleum Gas
Type	(a) Total Gas consumption in g/h. (b) Hot water output in litres/min (c) Heat Input (kW)